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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,436

04/25/2007

Naomitsu Nishihata

10-108-US

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7590

08/05/2010

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EXAMINER

FERGUSON, LAWRENCE D

ART UNIT

PAPER NUMBER

1783

NOTIFICATION DATE

DELIVERY MODE

08/05/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptoipinbox@reedsmith.com

Office Action Summary	Application No. 10/589,436	Applicant(s) NISHIHATA ET AL.	
	Examiner Lawrence D. Ferguson	Art Unit 1783	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-11,14,15,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) 19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11,14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/2/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Request for Continued Examination

1. This action is in response to the request for continued examination filed April 5, 2010. Applicant amended claims 1, 3-4 and 14 and cancelled claims 2, 12-13, 18 and 21 rendering claims 1, 3-11 and 14-15 pending with claims 19-20 withdrawn as a non-elected invention.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections – 35 USC § 103(a)

3. Claims 1, 3-11 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishihata et al. (WO 00/343369).

Nishihata discloses a resin composition comprising 40 to 98.5 wt% of a thermoplastic resin, 1 to 40 wt% of a carbon precursor having a volume resistivity of 10^2 to 10^{10} Ωcm and 0.5 to 30 wt% of at least one conductive filler having a volume resistivity lower than 10^2 Ωcm (page 13, lines 13-26 and page 14, lines 1-20). The carbon fiber can be used as a conductive filler (page 20, lines 1-8). Nishihata further discloses the composition can be formed or molded into various shapes and can be applied to a wide variety of fields including the field of machining (page 29, lines 13-25).

Art Unit: 1783

and page 31, lines 11-20). The thermoplastic resin can be a thermoplastic polyester, such as polybutylene terephthalate or polyethylene terephthalate (page 14, lines 1-10), which instant claim 3 defines as having a melting point of at least 220°C and also discloses the thermoplastic polyester can be poly(phenylene ether) (page 14, lines 1-11) which instant claim 4 defines as having a glass transition temperature of at least 170°C. The carbon precursor has a carbon content of generally 80 to 97wt% (page 16, lines 20-23).

Because the reference discloses the composition can be formed or molded into various shapes in the field of machining, it is expected for the various shapes to include a stock shape for machining or a plate. The composition has a surface resistivity of 10^5 to $10^{12}\Omega$ (page 26, lines 17-19). Although Nishihata does not disclose the exact thickness of the article, because the composition can be formed into various shapes, it would have been obvious to one of ordinary skill in the art for the article to be formed or molded into a shape having a thickness of 4 to 70mm. Given the teachings of Nishihata, including a composition that can be formed into various shapes, it would have been obvious to one of ordinary skill in the art, to determine the optimum thickness of the molded article. It also would have been obvious to one of ordinary skill in the art to optimize the thickness of the article, which affects the durability of the article, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, as in claims 1 and 3-4.

In claim 1, the newly added phrases, “produced by an extrusion and solidification method using an extrusion forming machine...and the feed speed of the drill is

Art Unit: 1783

200mm/min, and the length of the burr produced around a hole is evaluated with an electron microscope” introduces process limitations to the product claim. For purposes of examination, product-by-process claims are not limited to the manipulation of the recited steps, only the structure implied by the steps. See MPEP 2113. In the present case, the recited steps imply a structure having a resin composition comprising 30 to 94% by mass of a thermoplastic resin (A), 5 to 40% by mass of a carbon precursor (B) having a volume resistivity of 10^2 to 10^{10} Ωcm and 1 to 30% by mass of a conductive filler (C) having a volume resistivity lower than 10^2 Ωcm . The reference suggests such a product because Nishihata discloses a resin composition comprising 40 to 98.5 wt% of a thermoplastic resin, 1 to 40 wt% of a carbon precursor having a volume resistivity of 10^2 to 10^{10} Ωcm and 0.5 to 30 wt% of at least one conductive filler having a volume resistivity lower than 10^2 Ωcm (page 13, lines 13-26 and page 14, lines 1-20).

Concerning claim 5, the thermoplastic resin can be a poly(ether ether ketone) (page 14, lines 1-14).

Concerning claim 6, the thermoplastic resin can be a mixture of at least two thermoplastic resins (page 14, lines 1-20 and page 15, lines 13-14).

Concerning claims 7-8, the synthetic resins, such as poly(ether ether ketone) and poly(ether imide) can be combined (page 14, lines 13-17 and page 15, lines 13-14) which is interpreted as being combined in a ratio of 50:50.

Concerning claim 9, the synthetic resins, such as poly(phenylene sulfide) and poly(ether imide) can be combined (page 14, lines 13-17 and page 15, lines 13-14) which is interpreted as being combined in a ratio of 50:50.

Art Unit: 1783

Concerning claim 10, the synthetic resins, such as poly(ether ether ketone) and poly(phenylene sulfide) can be combined (page 14, lines 13-17 and page 15, lines 13-14) which is interpreted as being combined in a ratio of 50:50.

Concerning claim 11, the synthetic resins, such as poly(ether ether ketone), poly(phenylene sulfide) and poly(ether imide) can be combined (page 14, lines 13-17 and page 15, lines 13-14) which is interpreted as being combined in a ratio of 50:50, where poly(ether ether ketone) and poly(phenylene sulfide) have a combined ratio in comparison to poly(ether imide) due to Nishihata discloses the resins can be in any combination.

Concerning claim 14, the carbon fiber is a polyacrylonitrile or pitch based carbon fiber (page 20, lines 1-8).

Concerning claim 15, Nishihata discloses a resin composition comprising 40 to 98.5 wt% of a thermoplastic resin, 1 to 40 wt% of a carbon precursor and 0.5 to 30 wt% of at least one conductive filler (page 13, lines 13-26 and page 14, lines 1-20).

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 6,545,081 teaches a resin composition comprising 40 to 98.5 wt% of a thermoplastic resin, 1 to 40 wt% of a carbon precursor having a volume resistivity of 10^2 to 10^{10} Ωcm and 0.5 to 30 wt% of at least one conductive filler having a volume resistivity lower than 10^2 Ωcm (page 13, lines 13-26 and page 14, lines 1-20). The reference does not teach the resin composition having a thickness or diameter exceeding 3 mm.

Response to Arguments

5. Applicant's arguments regarding the rejection made under 35 U.S.C. 103(a) as being unpatentable over Nishihata et al. (WO 00/343369) have been considered but are unpersuasive. Applicant argues Nishihata does not disclose or suggest the process utilized to produce the resin composition disclosed in Nishihata. For purposes of examination, product-by-process claims are not limited to the manipulation of the recited steps, only the structure implied by the steps. See MPEP 2113. In the present case, the recited steps imply a structure having a resin composition comprising 30 to 94% by mass of a thermoplastic resin (A), 5 to 40% by mass of a carbon precursor (B) having a volume resistivity of 10^2 to 10^{10} Ωcm and 1 to 30% by mass of a conductive filler (C) having a volume resistivity lower than 10^2 Ωcm . The reference suggests such a product because Nishihata discloses a resin composition comprising 40 to 98.5 wt% of a thermoplastic resin, 1 to 40 wt% of a carbon precursor having a volume resistivity of 10^2 to 10^{10} Ωcm and 0.5 to 30 wt% of at least one conductive filler having a volume resistivity lower than 10^2 Ωcm (page 13, lines 13-26 and page 14, lines 1-20). Applicant further argues Nishihata does not disclose a plate having a thickness of 4 to 70mm or a round bar having a diameter of 4 to 70mm. Because the reference discloses the composition can be formed or molded into various shapes in the field of machining, it is expected for the various shapes to include a stock shape for machining or a plate. The composition has a surface resistivity of 10^5 to 10^{12} Ω (page 26, lines 17-19). Although Nishihata does not disclose the exact thickness of the article, because the composition can be formed into various shapes, it would have been obvious to one of ordinary skill in

Art Unit: 1783

the art for the article to be formed or molded into a shape having a thickness of 4 to 70mm, absent any evidence to the contrary.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is 571-272-1522. The examiner can normally be reached on Monday through Friday 9:00 AM – 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample, can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Lawrence Ferguson/
Patent Examiner, Art Unit 1783

/David R. Sample/
Supervisory Patent Examiner, Art Unit 1783